SMART FACILITIES
INSPIRING A GLOBAL MOVEMENT
#NEXTGENUNDP
ABOUT UNDP

UNDP works in about 170 countries and territories, helping to achieve the eradication of poverty, and the reduction of inequalities and exclusion. We help countries to develop policies, leadership skills, partnering abilities, institutional capabilities and build resilience in order to sustain development results.

This is a critical time for the world. At UNDP, we see this period as a huge opportunity to advance the global sustainable development agenda. In September 2015, world leaders adopted the 2030 Agenda for Sustainable Development to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. UNDP is working to strengthen new frameworks for development, disaster risk reduction and climate change. We support countries’ efforts to achieve the Sustainable Development Goals, or Global Goals, which will guide global development priorities through 2030.
INTRODUCTION
COMMITTED TO DEVELOPING SMART FACILITIES

Focus on Smart Facilities

The desire to fuse smart initiatives with renewable energy solutions is the driving force in the installation of UNDP Smart Facilities. Enveloped in the Fourth Industrial Revolution, and inspired by the smart cities concept, OIMT/CIAS aims to align UNDP with certain aspects of dynamic technological innovation. These new technologies aim to ensure economic growth through unparalleled efficiency as office management and operations become increasingly monitored, streamlined and automated.

UNDP OIMT/CIAS is now beginning to draft the roadmap and strategic framework for the organisation’s installation of Internet of Things (IoT) technologies in country offices, ushering in a new era of efficiency. Laying the foundations for the implementation of smart technologies, such as the IoT sensors, Big Data, advanced analytics with embedded Artificial Intelligence and continuous monitoring bolsters the UNDP’s SDG support. Through the implementation of these technological advanced means of monitoring UNDP office space ensures the future of the organisation is not only more productive, but also creates a safer working environment for its staff.

Smart Facilities can be viewed to go beyond traditional conceptions of modern office efficiency due to an overriding focus placed on sustainability. Working to improve the energy performance of offices and buildings, for both UNDP and external bodies occurs, through the digitisation of buildings and more directly through developing the future capacity to procure and install the Internet of Things (IoT) technologies. The integration of smart technologies with the growing global need to be more energy efficient holds the key to global de-carbonisation objectives set out by the 2030 Agenda. A by-product of this the ability for offices that install these technologies is the capacity for offices to become more economically competitive and resilient. Long term economic growth can be viewed to go hand-in-hand with the ‘greening’ process as it implores for resource optimisation and implementation of sustainable initiatives that are liberated from the grid. The fusion of smart technological initiatives with renewable energy provides a further means to ensure efficiency. As non-renewable resources dwindle, the shift towards renewables is the key to enabling stable economic growth in a world that become increasingly reliant on electricity.

Smart Facilities aims to inspire and support this sustainable-technological fusion beyond just UNDP country offices. UNDP OIMT/CIAS constantly looks to the future, committed to the development of innovative facilities that simultaneously assists in local growth and inspire other UN agencies, governments, NGO’s and the private sector to adopt similar initiatives. In this way, the team aims to trigger an international movement in the pursuit of social and economic development. Humanitarian work and innovation are integrated through the installation of economic and sustainable solutions enabled for the direct growth of local capacity through the employment of vendors on the ground. Money is put into the country of developing nations and knowledge is shared, enabling for future projects in that respective region to occur more readily. Smart Facilities has latched onto the tether between sustainable energy and the ‘Smart’ movement, employing it as the key to poverty reduction, social progress and economic growth in nations that need it most.
Solar Panel Installation by UNDP Green Energy Team at the UNDP country office in Yemen

With support from UNDP Green Energy Team in Copenhagen, solar panels installations will enhance and insure the smooth operation of UNDP's activities in the area. As 92% of all energy used by the office is solar, UNDP Yemen is able to save USD 72,130 per year.
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**OUR VISION**

CREATING SMART FACILITIES TO BUILD LOCAL CAPACITY AND INSPIRE A MOVEMENT

UNDP Office of Information Management and Technology (OIMT) supports and guides Country Offices in leveraging technology in order to ensure alignment with UNDP mandate. The OIMT unit’s vision to create Smart Facilities that build local capacity and inspire UNDP projects, governments, NGO’s and the private sector to adopt similar initiatives, triggering a national movement in the pursuit of social and economic development. It implements sustainable solutions that can be replicated throughout the world.

UNDP simultaneously undertakes efforts to reduce greenhouse gas emissions, analyze the cost implications and explore budgetary modalities of purchasing carbon offsets to eventually reach climate neutrality.

This vision is undertaken through the offering of a range of high-quality products and services for Green Energy and ICT systems. Quality is ensured through working within the UNDP’s corporate standards of drawing upon internationally recognized best practice, while simultaneously utilizing best practice found within local innovation as seen throughout the organization. The involvement of local players in partnership with international vendors is also fundamental as it enables for the development of a citizen-centric eco-system. International standards;

- Undertake efforts to reduce greenhouse gas emissions;
- Analyze the cost implications and explore budgetary modalities of purchasing carbon offsets to eventually reach climate neutrality.

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*The whole is greater than the sum of its parts.*  - Aristotle
The Sustainable Development Goals are a first in human history—a global compact to create a future where nobody is left behind.

The 17 goals were adopted by all countries at the United Nations in September 2015.

They encompass every aspect of human and planetary wellbeing; a universal call to action to end poverty, to protect Earth and ensure all people enjoy peace and prosperity.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

With only ten years left to achieve the Sustainable Development Goals, world leaders at the SDG Summit in September 2019 called for a decade of action and delivery for sustainable development, and pledged to mobilize financing, enhance national implementation and strengthen institutions to achieve the Goals by the target date of 2030, leaving no one behind. The UN Secretary-General called on all sectors of society to mobilize for a decade of action on three levels: global action to secure greater leadership, more resources and smarter solutions for the Sustainable Development Goals; local action embedding the needed transitions in the policies, budgets, institutions and regulatory frameworks of governments, cities and local authorities; and people action, including by youth, civil society, the media, the private sector, unions, academia and other stakeholders, to generate an unstoppable movement pushing for the required transformations.

The initiatives of OIMT/CIAS are directly guided by these global objectives, with the construction of modern day facilities enabling all UNDP Country Offices to readily comply with these standards. The OIMT/CIAS aims to provide standardized practices for UNDP country offices to work towards SDG objectives, while simultaneously inciting other local and international entities to follow. (NEEDS MORE)

The installation of clean energy is considered an integral part of the global strategy to end poverty, protect the planet, and ensure prosperity for all.
‘We cannot advise over 140 countries on raising their ambitions to reach the Sustainable Development Goals without doing so ourselves’

Achim Steiner
UNDP Administrator

June 5th 2007 marked the beginning of the UN’s journey towards carbon neutrality with UN agencies, funds and programmes being called upon by UN Secretary-General Ban Ki-moon to ‘go green’ and become climate neutral. In October of the same year during the meeting of the UN System Chief Executives Board for Coordination, the Executive Heads of UN agencies, funds and programmes all committed to move their respective organizations towards climate neutrality through the; Estimation of the greenhouse gas emissions of UN system organizations consistent with accepted international standards; Undertake efforts to reduce greenhouse gas emissions; Analyze the cost implications and explore budgetary modalities of purchasing carbon offsets to eventually reach climate neutrality.

Sustainable UNDP

As a leading agency in the fight against climate change, UNDP is committed to “walk the talk” by demonstrating that we run our operations in a resources-efficient, sustainable and accountable way.

Substantial progress has been achieved in moving UNDP towards “greener,” more resilient operations both at HQ and in many Country Offices and Regional Centers. Around the world, our offices are working towards minimizing the environmental impact associated with our operations, from green building renovations and sustainable procurement practices to staff training and bicycling programs. By now, over 20 UNDP offices have installed or are in the process of installing photovoltaic electricity systems to reduce GHG emissions and enhance office energy security. Staff throughout the organization are developing efficient and creative solutions to reduce our reliance on fossil fuels and natural resources.

Recently UNDP Administrator Achim Steiner launched a ‘Greening UNDP Moonshot’, committing to reducing UNDP’s global GHG emissions by 25% by 2025 and 50% by 2030.

UNDP knows that neutral is not enough

Today, UNDP is climate neutral in its global operations but working hand-in-hand with over 140 countries to raise their climate ambition, UNDP knows that neutral is not enough! Fundamental changes in organizational culture and business model are needed to confidently walk the climate talk – and support UNDP local partners to do the same. A new Sustainable UNDP Challenge Fund is established to competitively support UNDP greening solutions around the world.
UN Tanzania on a greening Mission

UNDP Tanzania has recently celebrated the adoption of clean energy with an installation of a Hybrid Solar Power System at the United Nations House in Dar es Salaam. “These solar panels will enable UN House to offset 68 tonnes of CO2 emissions annually, while producing an impressive 187 Megawatt hours of clean and more efficient energy,” said Kanni Wignaraja, Director ad interim, Bureau for Management Services.
QUALITY POLICY

MONITORING OUR PERFORMANCE

Quality Management

The OIMT/CIAS Unit is committed to offering high quality products and services for Green Energy and ICT systems to UNDP Country Offices. Quality is ensured through working within the UNDP’s corporate standards of drawing upon internationally recognized best practice, while simultaneously utilizing best practice found within local innovation as seen throughout the organization. OIMT/CIAS strives to achieve these high standards through;

- Soliciting feedback from customers and other interested parties in order to continually improve processes and services
- Monitoring the success of projects through performance metrics in order to evaluate progress
- Keeping UNDP management informed on issues and risks as they arise in Country Offices and the actions being taken to manage those risks

ISO 9001 Quality management

The ISO 9001 Quality Management System is also utilized for all unit processes everywhere, every time and without exception. ISO International Standards ensure that products and services are safe, reliable and high quality. They are strategic tools that reduce costs by minimizing waste, errors and increasing productivity.
Green Energy Solutions is home to all things Green for UNDP Country Offices – from energy monitoring devices to solar solutions. It aims to be the driving force behind Greening the Blue.

Green Energy Solutions represents a movement towards a more sustainable future through a commitment to carbon reductions and the development of a socially inclusive global environment. A key means of achieving this vision occurs through moving away from unsustainable patterns of energy production and consumption and towards sustainability.

Through an analysis of this information Green Energy Solutions is able to give unparalleled advice and support on energy optimization and solar system solutions to unlock Country Office potential. The establishment of long term agreements with solar power vendors the unit is able to streamline this ‘greening’ process for Country Offices across the globe.

In recent years solar energy solutions have become financially beneficial alternative to conventional energy. Through investing in renewable energy sources UNDP Country Offices are able to cultivate a level of energy security and business continuity difficult to match with other sources, while also acting to protect the environment and ensure the fulfillment of select SDGs.

7 Steps Green Energy Process

For Solar initiatives the OIMT/CIAS created a standardized process that is broken down into seven steps. The 7 Step Solar Solution is essential to operations as it eliminates ambiguities and presents clear milestones from the projects inception to final commissioning. It enables effective and safe deployment of renewable sources in respective facilities, for both normal operations and during crisis response.

Green Energy Solutions Global Achievements
The UNDP OIMT Green Energy team works to inspire a clean power revolution. This service portfolio shows the means with which they achieve this change throughout countries around the world.

The Green UNDP initiative has installed 4,873 (?) solar panels and transformed 13 offices (?) around the world with a combination of new technology, solar power, Smart Facilities, and electronic vehicle charging stations.

From Afghanistan, to Sao Tome, to South Sudan, communities that didn’t have even reliable 20th century technology are leapfrogging to the forefront of the 21st. This is being achieved with the help of solar panels, solar street lamps, electric vehicles and vehicle grid integration, drones and electricity sensors. (Needs information for products and services)

“Behind the electric vehicles and solar panels that you see, is Vehicle-Grid-Integration. This revolutionary technology allows the EV to work not just as a car, but also as an energy storage system which works in harmony with the grid for bi-directional charging”.

Gerald Demeules
Global ICT Advisor UNDP OIMT
7 Steps Green Energy Process

1. Self-Assessment and PCMM
   - Acts to provide essential information and data for decision-making, with the information gathered during the self-assessment step.

2. Business Case
   - Is embarked on depending on the Country Offices approval of the business case. Request for quotations to be shared with LTA holders.

3. Procurement
   - The vendor carries out an on-the-ground site survey to exhaustively take into consideration all aspects that can have an implication on the implementation of the solution.

4. Site Survey
   - Serves to collect all prerequisite information for drawing up a sustainable solution for the office.

5. Design
   - The vendor designs the solution for the specific site using information collected from the previous step. OIMT provides technical expertise on behalf of the local office.

6. Installation
   - The Installation step starts with compilation of an implementation schedule covering shipment of equipment, assembling team(s), and defining milestones, among other things.

7. Operation & Maintenance
   - Operation and maintenance covers system documentation, user acceptance (UAT), training of local staff, project commissioning, signing of maintenance agreement, etc.

Photo: UN/Julie Pudlowski
**Benefits of Green Energy Solutions**

The role of non-renewable energy contributing to climate change is proven. Energy derived from fossil fuels and coal-fired power plants is a critical contributor to greenhouse gas emissions across the world. As global temperatures rise and air quality worsens the UNDP aims to source its energy from a source holds no negative effect. In alignment with the SDGs OIMT/CIAS offers green solutions to mitigate the organization’s effect.

The renewable energy sector is growing and evolving rapidly as its benefits stretch beyond being purely environmental. All renewable energy solutions supported by UNDP focus on integrated approaches that benefit climate and development. UNDP’s integrated approach and focus on zero-carbon, risk-informed, sustainable development, mean that renewable energy is a core element in other development areas, including achieving climate targets, reducing disaster risks (associated with rising temperatures), and building back better following a disaster event.

The installation of solar systems and a power bank increases energy security in regions where grid often face constant power supply deficits. In situations of crisis solar solutions are able to address the urgent need for reliable energy. Building on energy resilience, the installation of Vehicle-Integrated-Grid technologies allows for cars to function as batteries and in time of power outages solar energy can be employed instead of taking energy from the non-renewable fueled grid.

Affordable and scalable energy solutions enable UNDP offices, and countries more broadly to leapfrog to cleaner and more resilient energy solutions. There has been a rapid and marked decline in renewable technology installation costs, meaning that it now a viable alternative for country offices across the globe. The long term economic benefits of being off grid is also monumental, with thousands of USD saved per year for Country Offices.

‘By implementing smart electricity measurement and monitoring system (PCMM) it has become possible to obtain precise information about the reliability of electrical supply.’
‘This is a unique project that demonstrates how renewable energy and technology can improve security in a remote location — in this case, training a thoroughly professional police service trusted by the community.’

Gerald Demeules
Global ICT Advisor UNDP OIMT

The outskirts of Juba have been made safer due to a UNDP OIMT/CIAS greening initiative with South Sudan Rajaf Police Academy.

The Rajaf Police Academy functions as a training ground for students, a place where they learn about the theory and practice of policing strategies, human rights, trauma management and community policing. However, the quality delivery of this education was severely hindered as it functioned with nearly no power. In the absence of a reliable source of energy the academy was also often dependent on diesel generators, which proved to be costly to manage, unreliable and environmentally harmful.

In April 2018, UNDP OIMT assisted with the installation of a renewable alternative, rewiring the compound so that it was predominately powered by 132 solar panels and 35 solar street lamps. The academy’s dormitories were also rewired to ensure an efficient and uninterrupted power supply.

The installed solar PV system generates 24,455 kW of clean energy, enough to light the premise throughout the year. The system also saves the academy over $9,000 in fuel costs. With 25.6 tonnes of CO2 emissions abated every year, it acts a practical solution for the reduction of greenhouse emissions.

The project develops increased energy security and reliability that assists in reducing environmental effect and improve the security of the academy. Solar streetlamps turn on automatically, ensuring that students are able to find their way in the dark and improves security in the remote area.
Game-changing innovation

“...This has given us a great boost. It has given us energy, power, and electricity. We have light, and we serve the whole community with water. We keep informed with radio and television — we are now part of the global village.”

- Colonel J.D. Karlo, South Sudan National Police Service Spokesman
GREEN ENERGY SUCCESS STORY
UN NAMIBIA GOES SOLAR

Over a three year period, the UN House in Namibia has made great strides in green energy and technological innovation.

Discussions of switching to renewable energy for this UN Namibia in Windhoek began in November 2016. The installment of a solar solution possessed both sustainable and economic benefit in Namibia as it has over 300 days of sun per year, the second highest level of solar irradiation and an abundance of land. In 2017 Photovoltaic (PV) cells were installed, enabling UN House Namibia to become both self-sustaining and energy-efficient. The system was implemented and designed to lower the amount of energy from the grid, cutting CO2 by 20 tonnes annually and saving the UN house USD 15,200 per year. Since its installation, power purchased from the grid and consumed by the UN House has decreased by approximately 50 per cent.

In 2016 the UNDP and Nuvve, a California-based corporation entered into a dialogue on the role bi-directional EV’s combined with solar PV systems could play in generating a more resilient energy supply. In 2018 Namibia made further efforts towards sustainability with the installation of two bi-directional charging stations for EVs. In early 2019 fuel prices soared in Namibia, giving increased grounding to the benefits of a vehicle that is not limited by non-renewable resources. On the 3rd of August 2019, two Nissan LEAF electric vehicles were donated by Nissan South Africa to UN House Namibia, to be used in a Vehicle-Grid-Integration project.

Vehicle-Grid-Integration

When there is more solar power than what is used, particularly over weekends and UN holidays solar energy will be directed to charge the Electric Vehicles (EVs). In the evenings the EVs may also serve as a power source to the building – an alternate to more expensive energy from the grid (energy shifting).

If there is no excess solar power, the EV can be charged during the night from the grid. During the day when the prices of electricity are often much higher this electricity can be used from the EVs, therefore reducing energy costs.

If the grid-power goes down, due to frequent power outages the EVs can be employed as a backup power supply, allowing lighting, communication equipment and even refrigeration and limited air-conditioning to remain functional for business continuity improvement.
Infrastructure Services functions to support and offer technologically advanced systems to UNDP Country Offices, aiming to improve connectivity, mobility and security. Through the implementation of the latest technologies, Infrastructure services are able to offer and supply breakthrough solutions for a variety of dynamic issues that UNDP Country Offices face. Infrastructure Services, particularly the OneICTBox and the OneICTBox Lite, work in line with the corporate drive for greening UNDP operations, realizing value for money and the need to implement cloud computing.

Threats to ICT systems in Country Offices can come from a variety of sources, ranging from natural disasters and power outages to cyber attacks. In times of crisis, office operations are able to remain relatively unaffected at the ICT level through the multiple systems put in place by the Infrastructure team. Many country offices prefer to use VSAT as a back-up due to its independence from local telecom infrastructure. The Infrastructure services team continues to manage 100+ VSAT stations for Country Offices and sub-/project offices. Country Offices in crisis can therefore be empowered through enhanced digital connectivity. Assisting in the movement towards cloud adoption also increases UNDP agility in its operation, allowing for quick innovation and operational resilience.

While the majority of UNDP’s Country Offices are covering their connectivity requirements locally thanks to increased fiber optic penetration in developing countries in recent years, OIST is still managing 100+ VSAT stations for Country Offices and sub-/project offices through 2 corporate Long Term Agreements for VSAT services with a $4 million annual turnover.

Although local connectivity options are the preferred choice in UNDP, many Country Offices prefer to use VSAT as a back-up due to independence from local telecom infrastructure. In addition, many Country Offices such as Congo, South Sudan, etc. leverage corporate LTAs to obtain reliable connectivity in sub and project offices away from the capital city and often in locations with deficient telecom infrastructure.
INFRASTRUCTURE SERVICES
PRODUCT AND SERVICE PORTFOLIO

Infrastructure services provide different services and products that deliver and offer technologically advanced systems to UNDP Country Offices, aiming to improve connectivity, mobility and security.

The OneICTbox and OneICTbox Lite are state-of-the-art data centres in a portable rack. It replaces an entire traditional data centre and its hardware is scalable to serve up to 1000 users. It was designed based on an innovative “Office of the Future” approach and provides all setup and services and spans from ISB router, virtual servers, Link Load Balancer, WAN acceleration, security services, wireless, voice, UCS and monitoring.

The OneICTbox combines several devices such as router, firewall, proxy server, link load balancer into one robust solution. Depending on a configuration, the OneICTbox can also include IP Telephony and space for virtual servers such as Active directory, print server and similar.

The Unit also provides VSAT, MSS-3 and CCTV cameras to country offices. While providing these services they are also constantly looking to innovate and keep up with new technologies. The ICT team is looking at integrating the Internet of Things (IoT) into the portfolio of services and products that they are offering.

‘ICT has been there for us. Projects like OneICTBox are critical to our delivery. Last year we suffered political instability and violence. Remaining connected allowed us to exceed our delivery results when a third of our days were spent telecommuting.’

Pauline Temesis
Country Director UNDP Bangladesh
"Better and improved coverage (including outdoors) of the Wireless signals because of the installation of Cisco Meraki MR32 Access Points. Separate VLANs for Guest and Internal also allows better control and improved security of our network which was not possible with the previous uncontrollable access points."
- Tafara Chekai, ICT Manager, UNDP Mozambique

"The installation brought the ICT infrastructure of Myanmar Country Office up to the corporate UNDP standard."
- Saw Daniel, Administrative & ICT Analyst, UNDP Myanmar

"We had a smooth transition without any issues."
- Osman Tosun, ICT Manager, UNDP Turkey

"Before migrating, users claimed about internet connectivity issues. We had internet slowness everyday. Once we moved to the OneICTBox, connection is improved. Now, with the same bandwidth users have from 1 to 3 Mbps."
- Patrick Raharinirina, ICT Manager, UNDP Madagascar

"UNDP Liberia Country Office relocated to a new building over the weekend. It was a great experience especially for the ICT relocating the server room that we now have in the OneICTBox... Bravo to the OneICTBox team for implementing such system."
- Eutychinus Kemoe Woah, Head of ICT, Liberia

"We had a smooth transition without any issues."
- Osman Tosun, ICT Manager, UNDP Turkey
How do the Green Energy team, Infrastructure Services, UNDP country offices, vendors and partners connect to each other? How can UNDP OIMT provide straightforward operations between the different actors and units that supply and deploy smart facilities around the globe?

The Service Delivery team based in UN City Copenhagen represents the administrative and financial backbone of the UNDP OIMT Unit and facilitates a smooth delivery of all services and Products provided by UNDP OIMT.

The unit connects 16 UN agencies, 18 UN Headquarters, 147 UNDP Country Offices and other partners to its Smart Facilities, Green Energy and Infrastructure services around the world. They act as a middle man between vendors, service providers and the receivers of goods and services.

The unit also makes sure that the products and services delivered to their customers are accompanied by customer support and they make sure to be ready to assist when questions arise concerning services and products delivered.
The Service Delivery Unit of UNDP OIMT functions through the following six products and services: Procurement and logistics, Finance, Intranet and app development, Human Resources, Communications, and Asset and Inventory Management. These services are all delivered and designed to ensure the effective implementation of operations within the Green Energy and Infrastructure Services units.

**EStore**

The eStore is designed as a one-stop-shop for all procurement needs for ICT and Green Energy products and services offered by OIMT. The eStore offers a range of 288 products and services, which are continuously expanding. The team behind it features ICT engineers and procurement experts to ensure the best product for the best price. This is facilitated by centralizing the procurement processes, which leads to bargaining power and economy of scales. The concept is to reduce the time and resources that Country Offices have to dedicate for procurement efforts and at the same time provide the best value for money to service their needs. The eStore provides a structured way for Country Offices to address their individual requests, by reviewing prices, initiating orders to get up to date prices, and tracking cost recovery and the delivery process.

**Evolution of the E Store since 2013**